

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: Schumm, James W.
Bacher, Jeffery W.

(ii) TITLE OF INVENTION: MATERIALS AND METHODS FOR
IDENTIFYING AND ANALYZING INTERMEDIATE TANDEM
REPEAT DNA MARKERS

(iii) NUMBER OF SEQUENCES: 147

(iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: Promega Corporation
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(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Diskette - 3.5 inch, 1.44 Mb
(B) COMPUTER: IBM compatible PC
(C) OPERATING SYSTEM: Windows NT 4.0
(D) SOFTWARE: WordPerfect 7.0 (DOS text format)

(viii) ATTORNEY/AGENT INFORMATION:

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(2) INFORMATION FOR SEQ ID NO:1

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 445 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(vii) IMMEDIATE SOURCE:

(A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: C074

(viii) POSITION IN GENOME:

(A) CHROMOSOME/SEGMENT: 1

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

GATCCTTTGC ACCCAGANAG AAGTAATTAT TTCAACACAG TTGGAACAGT 50

TAAAAAGATT	TAAAATTTTC	AAAAAAACAA	TCATTTTCTC	TTTTCTTTCT	100
GGCTCAGACA	CCTCATTGCT	TTCTGACTGA	CCAAGGCGCA	GCGCANTTTG	150
CAGCAGCCAT	GGGGGTTCCA	GAGATTCCTG	GANAAAAACT	GGTGACAGAN	200
AGAAACAAAA	AGCGCCTGGA	AAAAGATAAG	CATGAAAAAG	GTGCTCAGAA	250
AACAGATTGT	CAAAAGTAAG	TCTTACCTGT	GGCTCGCATT	ATTGGGGAGT	300
TATTAAAATA	TGAAAGTTTG	GCAAATACCC	GGTTATCTAC	AGTCCTTTNG	350
TTTNGTTTGT	GTTTTGTTTA	GTTTGGTTTT	GTTTNGTTTN	GTTTGACACG	400
GAATCTCTCT	CTGTTGCCCA	AACTGGGAAT	ACAGTGGTGC	CGATC	445

(2) INFORMATION FOR SEQ ID NO:2

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 411bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
- (B) CLONE: C221

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 9p

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

GATCACTTGC	CATCCCTGCC	ACACAGTTTC	CTCCTCTGGA	AACTGGGGGT	50
GATGACCCCT	GCCCTACCCA	CTTGTCATGG	CATTGGGGAC	ATGAACACAC	100
TTTGACCTG	TCAGGCAAGG	CTTAAACAGG	GATATGCACT	GGTAATAGAA	150
AAGAGGGACT	AAGTTTTGTT	TTGTTTTGTT	TTGTTTTGTT	TTGTTTTGTT	200
TTGTTTTGTT	TTGTTTTGTT	TTGTTTTTCT	GAAGAAGTCC	CTAGAAGCGC	250
TCAGTGTGG	AATGCTCTCT	TGTAGCAGTG	GCGGCTGCTG	CTGGTTCCGG	300
GTCAGATGCC	GGAATTGGGG	GTGCGCTTGG	GTGCAGCTGC	ATTTCATCTG	350
GTCCTGGGCC	TCGGTCCTGG	CTTGAGAGAG	TGCAGCTCAC	AGCCACTTCA	400
TGGCTGGGAT	C				411

(2) INFORMATION FOR SEQ ID NO:3

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 354bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
- (B) CLONE: C240

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

GATCANCATG	GGTTCTATCT	GCCTGGCCCT	TCACCCCTA	CTCAGGGCAG	50
CTCTGAATTG	TCTNCCCCGC	TTCAAAGTTC	CCAGTTCAAC	TTCTCCCTCT	100

GCCCAATCCT GTTTCCTTCT CTTCCACAGG TATTAATTTG GCCAGNTGCA 150
 GTGGCTCATG CCTGTAATCT CAACTTTGGG AGGCCAAGGT GGGAGGATTG 200
 CTTGANCCCA GAATTTTGAA ACCANCCTCT GAAACATANT GANACCCCTG 250
 TCTCAAAACA AAACAAAACA AAACAAAACA AAACAAAAC TANCCAGGCA 300
 TGATGGTGTG TGCCTGTGGT CCCANCTATT CAGGAGGCTG AAATGGGAGG 350
 ATC 353

(2) INFORMATION FOR SEQ ID NO:4

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 317 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
- (B) CLONE: C331

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

GACCGTGGAA NCCAAAAGTC TGCCTACCGC ATCTTAGTCC AGAGTTCCTG 50
 TTTTACTTC TTTTGAAGG TCTGTGGATT CTTTATTTTC ATGGCACCTT 100
 AGCAATACAT TTTAAAAGCT TGTTTTATTT TATTCAGCAT TTTGGTTATT 150
 TCCATTGGAA NANTCATTC GGGCGTTTAG TCTGCCACAG TGCTGGAAAC 200
 TAAAGCTAGG ATTACATGTT TTGTTTTGTT TTGTTTTGTT TTGTTTTGTT 250
 TTGTTTTGTT TTGTTTTGTT ACAGGGTCTT GCTCTATTGC CTTAGGCTGG 300
 GGTGCAGTGT TGTGATC 317

(2) INFORMATION FOR SEQ ID NO:5

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 387 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
- (B) CLONE: C362

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 4

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

GATCTGGAGT GGAGAGCATT CCAGGCAGAA TGAAGAGCCA GGACCAAGAC 50
 CACNAGGTGG AAACAGACTA ACAGAAAGAA AGCCANACCA CGAGGCAGAA 100
 ACAGACTAAC AGAAAGAANA TCAGGTCGAC TTGCCTAAAA AGAGTGAGCT 150
 AGGGAAAAGC ATGGCGGAAG AAACAANGTT GCTGAAAGCA ACTCTTATTT 200
 TCTTGGCTTA GAAACCANNA AATGTCNTTT GGGTTTTATC TTAGCATAAT 250
 GAAAAGACAT GTNANACTTC TGAACACGAA ATCTGACATG TTTTACAGAC 300

NTGTTTTACA TGGTTTTGTT TTGTTTNGTT TTGTTTTGGG ATGGAGTCTC 350
GCTCTGTTGC CANGCTGGGA GTGCAATGGT TGCGATC 387

(2) INFORMATION FOR SEQ ID NO:6

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 471bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
- (B) CLONE: C390

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

GATCACGAGG TCAGGAGATG GAGACCATCC TGGCTAACAT GGTGAAACCC 50
CGTCTCTACT AAAAATACCA AAAAATTAGC CGGGCATGGT GGCGGGCGCC 100
TGTAAGTCCA GCTACTCAGG AGGCTGAGGC AGGAGAATGG CGTGAACCCG 150
GGAGGCGGAG CTTGCAGTGA GCCGAGATTG CGCCACTGCG CTCCAGCCTG 200
GGTGACAGCG AGAATCTGTC TCAAAACATA ACAAACAAA ACAAACAAA 250
ACAAACAAA ACAAACAAA TTTGGAATTA TGTAGGCAAA GTGGGAGAAA 300
GAGANGGACG AGGACTNAGG TAAAGATAAT ATGCAAAATA GAAAGAGCAN 350
GAAGGGGCAT GGATATGTGT AAATTCAAAG AAAGGCAAAG TGGCTGGTGC 400
ACAAAGAGTG AGGAGAGCAA NGNGTGAAAA TGAAGTTAGT GAGACAAGGC 450
AAGGGACAAA TCATGAAAAA T 471

(2) INFORMATION FOR SEQ ID NO:7

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 367 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
- (B) CLONE: G022

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 2p

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

GATCGCACCA CTGCACTCCA GCCTTGGTGA CAGAGCAAAA CTCNTTCTCC 50
AAAGAAAAGA AAAGAAAAGA AAAGAAAAGA AAAGAAAAAA AAAATCCATG 100
GTGAAAGTGA CGACAGTNGA GTAGGGGATG AGCTCAAAGC AAATGCATGC 150
ATGTNCCCCA CCCTCAACAC AAACACACAC ACACACACAC ACACACACAC 200
ACACACACAC ACACATACTT CTTTAGAGAT ATTTAGGTGT ATATATGCTA 250
ACTTAGGAAA CTTTAGAAAA CCTTGTTATG ATATTATTAG TCAAAAAATA 300
TTTAAGCCAC AGTTTCGCAA TTTTAAGATT GTACTACTGG TATCTGGAGT 350

ATCTGAATCT CTGGATC

367

(2) INFORMATION FOR SEQ ID NO:8

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 295 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
- (B) CLONE: G023

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 16q

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

GATCACAGCA	CTGCACTGCA	GCCTGGGCAA	GAGAGCAAGA	CCCTCTCTCT	50
CAGGGAAGAA	AAGAAAAGAA	AAGAAAAGAA	AAGAAAAGAA	AAGAAAAGAA	100
AAGAAAAGAA	AGGAAGGAAA	GAGAGAGGAA	GGAAGGAAGG	AAGGTAAGAA	150
GGAAGGAAGG	AAAGAAAGAA	GGAAGGAAGG	TAGGGTGGTT	TTGGGATGTG	200
AAATGCTGTC	AGTCAACAAA	GAGCTATGAC	CACAGGTGTC	ACTGAGTAGC	250
AGGGGCAGCC	CATCCTGCTC	CCTAGCTGCA	CTCACCCCTGA	AGATC	295

(2) INFORMATION FOR SEQ ID NO:9

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 361 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
- (B) CLONE: G025

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 1

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

GATCTGATGG	TTTCATAAGT	GTCTGGCATT	TCCCCTGCTT	GTACTTCTCT	50
CCCCGGCTAC	CGTGTGAAAA	AGGTCCTTGC	TTCCCCTTTG	CCTTCCACCA	100
TGATTGTGAG	CTTCCTGAGG	CCTCCACAGA	CATGTGGAAC	TGTGAGTCAA	150
TTAAACTTCT	TTCCTTTATA	AATTACCCAG	TCTCAGGAAG	TTCTTTGTAG	200
CAGTGTGAGA	ATGGAGGAAG	AAAGAAAAAG	AAAAAAAAGG	AAAAGAAAAG	250
AAAAGAAAAG	AAAAGAAAAG	AAAGGAAGA	AAGAAAGAAAG	AAAGAAAGAA	300
AGAAAGAAAG	AAAGAAAGAA	AGAAAGAAAG	AAAGAGAGAG	AAGTGGTTAG	350
CAAATGTGAT	C				361

(2) INFORMATION FOR SEQ ID NO:10

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 318 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: G047

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 2p

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

GATCACTTGA GGCCAGGGGT TCGAGGCCAG CCTGGGCAAC ATATCAAGAC 50
CCCCATCTCT ACATAAAAAG AAGAAGAAAC GAAAAGAAAA GAAAAGAAAA 100
GAAAAGAAAA GAAAAGAAAA GAAAAGAGTG GAAGAGTGCA GGAGCCGAGA 150
GGGAGAGAAA ATGTAGTGGT GAGGGGCAGC TTCTGGAAAG GCCCATACTA 200
CAGAGGGAGG AATCCTAATT CCTCACTATC TCTCTAACAT CAGGTAAGCA 250
TCTCATGATG CAGTTAGAAA GCACATTTCC TTCTTCAGTT TCCCCTCTGG 300
CTGTGTTGAC CCAGCCCA 318

(2) INFORMATION FOR SEQ ID NO:11

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 362 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: G065

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 1q

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

GATCACATTT GCTAACCACT TCTCTCTCTN TCTTTCTTTC TTTCTTTCTT 50
TCTTTCTTTC TNTCTTNCTT TCTTTCTTTC TATCTTCCTT TCTTTACTTT 100
NCTTTNCTNT TCTNTTCTAT TCCTTTANAT TTCTTTTCTT TTCTTTCTCC 150
ATTCTCACNC TGCTANAAAG AACTTCCTGA GACTGGGTAA TTTATANAGG 200
AAAGAAGTTT AATTGACTCA CAGTTCCACA TGTTTGTGGA GGCCTCAGGA 250
AACTTACAAT CNTGGTGGAA NGCAAAGGGG AANCAAGGAC CTTTTTCACA 300
CGGTAGCCCG GGAAATAATT ACAANCAGGG GAAATGCCAN ACACCTTATGA 350
AACCATCAGA TC 362

(2) INFORMATION FOR SEQ ID NO:12

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 297 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: G085

(vii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 10q

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

GATCATGTCA	TTGCACTCCA	GCCTGGGTGA	TACAGCAAGC	CTCATCGAAA	50
GAAAAGAAAA	GAAAAGAAAA	GAAAAGAAAA	GAAAAGAAAA	GAAAAGAAAA	100
GAAAGGAAGA	AAAGAAAACA	AANAGATAGA	AAGCAANCNN	GTGGCNTGAG	150
AANTNAAATT	CTTATAGGTA	ACCTGGAGGA	CTTTTATCTT	TCCAGGAGTC	200
TCTCTCAATG	CATTTAGACT	CAACAANGAT	TTCCTTTTCT	CTTGTCTCTA	250
NAAANAAATG	CATTTCCTCA	AAANANTGGA	GGTCANATTA	TGTTANAGAT	300
GGGAGAATGC	ACTGAGTTNC	GCTGAANGA			329

(2) INFORMATION FOR SEQ ID NO:13

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 372 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: G132

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 4 qter

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

GATCTACCAT	TCTTGGGTCT	GGAGAACAGT	GGCCCTTGTT	TCTTTTCTTT	50
TCTTTTCTTT	TCTTTTCTTT	TCTTTTCTTT	TCTTTTCTTT	CCTTTTCTTT	100
TCCTTTCCTT	TCCTTTTCTT	CTCTCTCTCC	TTCTCTCTCT	CTCTCTCTCT	150
CTCTCTCTCT	CTCTCTCTCT	CTCCCTCTCC	CTTCCCTTCC	CTTCCCTTCC	200
CTTCCCTTCC	TTTCCCTTCA	TTTTTTTGA	CATGGAGTTT	CACTCTTGTC	250
ATCCAGGCTG	GAGTACAGTA	NTGTGATTTT	GGCTCACTGC	AACCTCTGCC	300
TCNTGGGTTC	AAGAGATTCT	CCTGCCTCAG	CTTCCTGANT	AGCTGGGATT	350
ACAGGTGCCT	GCCACCATGC	TT			372

(2) INFORMATION FOR SEQ ID NO:14

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 350 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
- (B) CLONE: G145.1

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

GATCTCTTGA	AGCCTCGCAN	ATAAAGGCTC	CAGTGGGGTA	TGATTGCACC	50
ANTGCACTCC	ANCCTGNGAN	ACGGNAGAGA	GATTCTGTCT	CAAAAGAAAA	100
CAAAATAAAA	GAAAANAAAA	NAAAANAAAA	TAAAANAAAA	TANAAGAAAA	150
GAAAAGGATG	CTTTAAAAAT	NTGGCAAAAT	GTNCCCTTTA	TTGACTACTG	200
CCTTGTTTTA	ATTTNCTCTA	TTTNTCTATT	TATTTTCTCA	GTGTACTTTC	250
CCATNTNNCT	TTNTCTCTTC	CTTCTTTGAA	AGTAATTCTT	GGCCAGGCAT	300
GGTGGTTCAT	GCCTATAATC	TCANCACTTN	AGGGGGCTNA	AGCNGGAAGA	350

(2) INFORMATION FOR SEQ ID NO:15

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 372 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
- (B) CLONE: G152

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 8 qter

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

GACCACCTGA	GGTCATGAGT	TCCAGACCAG	CCTGGCCAAC	ATGGCAAAAC	50
CCCGTCTCTA	CTAAAAATAC	AAAAAATAGC	CGGTGTGATG	GTGGGTGCCT	100
GTAATCCCAG	CTACTCAGGA	GGCATGAGAA	TCGCTTGAAC	CTGGGAGGCG	150
GAGGTTGTAG	TGAGCTGAGA	TTGCGCCTCT	GCACTCCAGC	CTGAGTGATA	200
GAGTGAGACC	CCATCTTGAA	AGAAAAGAAA	AGAAAAGAAA	AGAAAAGAAA	250
AAGAAATTCA	TCATTGGGAA	ACATCATGGA	NGGCCGCNAC	CAGTCAGGGG	300
AACATTTC	CGAAAGCNANTT	NTTCTTCCAA	TGCCCTATGT	TNCTTCCCN	350
AAGCTTGCCA	TTTTNAACCC	TT			372

(2) INFORMATION FOR SEQ ID NO:16

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 361 bp
- (B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

(A) LIBRARY: plasmid, pGem3Zf(+)

(B) CLONE: G153

(iv) POSITION IN GENOME:

(A) CHROMOSOME/SEGMENT: 8 qter

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

GACCACCTGA	GGTCATGAGT	TCCAGACCAG	CCTGGCCAAC	ATGGCAAAAC	50
CCCGTCTCTA	CTAAAAATAC	AAAAAATAGC	CGGTGTGATG	GTGGGTGCCT	100
GTAATCCCAG	CTACTCAGGA	GGCATGAGAA	TCGCTTGAAC	CTGGGAGGCG	150
GAGGTTGTAN	TGAGCTGAGA	TTGCGCCTCT	GCACTCCAGC	CTGAGTGATA	200
GAGTGAGACC	CCATCTTGAA	AGAAAAGAAA	AGAAAAGAAA	AGAAAAGAAA	250
AGAANTTCNT	CATTGGGAAA	CATCATGGAG	GCCGCAGCAN	TCAGGGGAAC	300
ATTTCCGAAA	GCNAGTTGTC	NTTCCAATGC	CCTATGTTNC	TTCCCCNAAG	350
CNTGCCATTT	T				361

(2) INFORMATION FOR SEQ ID NO:17

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 447 bp

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Double

(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

(A) LIBRARY: plasmid, pGem3Zf(+)

(B) CLONE: G158

(viii) POSITION IN GENOME:

(A) CHROMOSOME/SEGMENT: 5q

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

GATCGCCTGG	GTACAGCAGG	AAAGAAGGGG	GCGGCCACGG	CAAGGCAGCC	50
TCCGACTGCC	CGGCGGGGGA	NGCCGGCGGC	GGCCCCTTCT	CGCCCTCTCC	100
TATAAGCAGT	TTTATAAGCT	TCCTGAGACT	ANAAAAGGAA	AAGAAAAGAA	150
AAGAAAAGAA	AAGAAAATC	AGTCTCTATT	TTATATGCGT	ATAATTTTTT	200
TTATATGCGT	ATAATTTTTT	TTTTAACCAA	AAACTCNTTA	TGGACAAAAC	250
AAACTACCAT	CCCACTCCAA	ATTATCTCTG	CATCATGCTC	ACAACCTCAG	300
CNCAAATTTT	AATANAANTT	TTATTGGGAT	ATGTTTGGCT	TCCATCAATT	350
GAAATTTCCC	CTAATGAATA	AAATTCCTC	CCGTTTTTTT	GGTAAACATT	400
TCCCCTTGNA	AGGCCACCT	AAAAATCNCC	NGGNCTTTTT	CCAAAGG	447

(2) INFORMATION FOR SEQ ID NO:18

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 415 bp

(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

5 (ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

10 (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: G181

(viii) POSITION IN GENOME:

15 (A) CHROMOSOME/SEGMENT:
(B) MAP POSITION:
(C) UNITS:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

20 GATCCCAAGC TTCCCGGGTA CCGCGATCAC CTGAGGTCAG GAGTTCAAGA 50
CCAGCCTTCT CAACATGGCA AAACCTCATT TCTACTAAAA ATACAAAAAA 100
TTAGCTGGGC ATGGTCTTGG GTGCCTGTAA TCCCAGCTAC TCAGGAGGCT 150
GAGGCAGGAG AATGTCTTGA ACCCAGGAGG CGGTGGCTGC AGTGAGGCAA 200
NATTTTGCCA GTGTNCTCCA GCCTGGGTGA CAANANTGAA ACTCCGTCTG 250
25 AAAGAAAGAA AGAAAAGAA AGAAAGGAAG GAAGGAAGGA AGGAAAGGGA 300
AGGAAAGAAA AGAAAAGAAA AGAAAAGAAA AGAAAAGAAA AGAAAAGAAA 350
AGAAAAGAAA AGAAAAGAAA AGAAAAGAAA TNAGATGGGG GAGCTCTACC 400
GAACTGATTC CGATC 415

(2) INFORMATION FOR SEQ ID NO:19

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 444 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

40 (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: G210

(iv) POSITION IN GENOME:

45 (A) CHROMOSOME/SEGMENT: 8p

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19

50 GATCCTATCC TGACAAACTC AAGCAAATTC ACAAATACAA CCCTCTAGCC 50
GGCCCATGGC CTCCCTATTT GGGAGGAAAA AACTCAGTAT GATACTGTGA 100
CATATTTTCAT TCATTATCTG TTAAGGTGAG CGTGGCAAAC CTGGCCGAAG 150
TGGCAGAATA TTGGGGCTCA TCACTTGGGG GAATGATTCA GGAGTGGCAT 200
CCTTCTGTGA CCTGTGACAG CCACTTAAGG TTGTGGGATG ACTACTACAA 250
55 AATCCCAAAT AAAGTATATC CTAAAGGCTT TCTTTTCTTT TCTTTTCTTT 300
TCTTTTCTTT TCTCTTCTCA TCTCTTGTCT TCTCTTCTTT TCTCCTCTCC 350
CCTCCCCTCC CATCCCCTCT CCTCTCCTCT CCTTCCTTG TTTTAAAAAC 400
AATGTCTTGC TCTGTTGACC AGGCTGGAAT GCAGTTCTGT GATC 444

(2) INFORMATION FOR SEQ ID NO:20

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 321 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(viii) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: G212

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20

GATCTCCTTC AGTGTACTCA GTGCATTCTC CATCTCTTAC ATAATCTGAC 50
CTCCACTCTT CCTGGAAATG CATTTCCTTT TAGAGACAAG AGAAAAGGAA 100
ATCCTTGTTG AGTCTAAATG CATTGAGANA NACTCCTGGA AAGATAAAAG 150
TCCTCCAGGT TACCTTTAAN ACTTTCATTT CTCCTGCCAC CTGCTTGCTT 200
TCTCTCTCTT TCTTTTCTTT TCTTCCTTTC TTTTCTTTTC TTTTCTTTTC 250
TTTTCTTTTC TTTTCTTTTC TTTTCTTTTC ATGAGGCTTG CTGTATCACC 300
CAGGCTGGAG TGCAATGACA T 321

(2) INFORMATION FOR SEQ ID NO:21

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 329 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: G233

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 10q

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21

GATCGCTTGA GCCTTGGAGA TTGAGGCTAC GGTGAGCTAT GATTGCACCA 50
CTGCACTCCA GCCTGGGTGA CAGAGTGAGA CCCTGGGAGA AAAAAAGAAA 100
GAAAAGAAAA GAAAAGAAAA GAAAAGAAAA GAAAAGAAAA GTCNTGACCT 150
TGGAAGAAAC CANAATTTCT GATGTTGTAC AACTCCTGAA TTCTGACTGC 200
TCTCTCCNCN GAAAGANGGA ATNNNTGNTC CTTGGAGGAT TCNTACTAAT 250
ATTCTTCGGT CNANACAAAA ACNTGACCTC NAGCCNAGAA AACAAATTN 300
NNCCNTTCCA TAGAAAAGTT CAGGGGACA 329

(2) INFORMATION FOR SEQ ID NO:22

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 412 bp
(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

(A) LIBRARY: plasmid, pGem3Zf(+)

(B) CLONE: G234

(iv) POSITION IN GENOME:

(A) CHROMOSOME/SEGMENT: 16 qter

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22

```
GGATCACGCC ATTGCACTCC ACTCTGGGCA ACAAGAGCAA AACTCCATCT 50
CAGAAAAAAA GAAAGAAAGA AAGAAAGAAA GAGAGAAAAG AAAACAGAAA 100
AGAAAAGAAA AGAAAAGAAA AGAAAAGAAA AGAAAAGAAA AGAAAAGAAC 150
CCNNCAGAAA GCCAAGGCAA TGGGAACAAG CTGGGGCAAG TGCCTGGAGG 200
TGTTGCTGGA AAGGCAGATA GGGCAGAGAG CACCTGGACT CTTCCAAAAC 250
ATATTAGCAT CATGGTAAAG CCCTCAGCCC AAGTCCCCCA GAACATAGCC 300
GTAGTCAACC AAGTTGAGAT TGATTACTAG CTTCTGTNA CAAGGGAGAT 350
TATNCNCACA CAAGTGCCAT CTGCCTCTCC CTTACCCAG CTTGAGTTTC 400
GCTTGTAGCA CT 412
```

(2) INFORMATION FOR SEQ ID NO:23

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 359 bp

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Double

(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

(A) LIBRARY: plasmid, pGem3Zf(+)

(B) CLONE: G235

(viii) POSITION IN GENOME:

(A) CHROMOSOME/SEGMENT: 2p

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23

```
GATCACCAGG CCCCTGAGGA AGCAGCACAG AAAAACACAA ATAATATCAA 50
TATCAGGCAG CCACAGGGGA AACAATGGGG CATTTCTCCG TGCTACATGC 100
ATGCTGCTAT TGTTTCAAGG GCTGGGGAAT TAATTCCACT TATTTATTTA 150
AGGCGTGTCA ACTCACTGCC TAAACCTGTT TCAGTGTCAA AATGGATAAA 200
ACTTTTATGG CTCATAAAAT ANANCCATTC ATCTCAATGT TCTTTGTGGT 250
GGGTTTTCTT TTCTTTTCTT TTCTTTTCTT TTCTTTTTC TTTTTTTTTC 300
TGGCATACTG AGCTAAACCT CTGCTCTGAA ACGGTTACAT CTGAACCCAT 350
TGCTGCTAT 359
```

(2) INFORMATION FOR SEQ ID NO:24

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 516 bp

(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

5 (ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

10 (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: G331

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24

15 GACTTTCCCA CCTTCTGATG TGGGCATTTA GTGCTATAAA TTTCCCTCTA 50
AACACTGCTT TAGCTGTGTC CCANAGATTC TGGTATGTTG TGTCTTTGTT 100
CTCATTGGTT TCAAAGAACT TATTTATTTT TGCCTTAATT TTGTTATTTA 150
CCCAGTAGTC ATTCAGGAGA AGGTAGTTCA GTTTCCATGT AGTTGTGAAG 200
TTTTGAGTGA GTTTCTTTTC TTTTCTTTTC TTTTCTTTTC TTTTCTTTTC 250
20 CTTTCTTTCT TTCTTTCTTT CTTTCTTTCT TTCTTTCTTT CTTTCTTTCT 300
TTCTTTTGTT TGAGATGGAG TCTTACTCTG TCGCCAGTCT GGAGTGCAGT 350
GGTGTCATCT CAGCTCGCTG CAACCTCCGC CTCCTGGGTT CAANAAATTC 400
CTCTGCCTCA GCCTCCCAAG TAGCTGGGTT TACAGGCACA CACCACCACG 450
25 CCCAGCTAAT TTTTGTATT TTANTAAAGA CAGGGTTTCA CCATGTTGAC 500
NAAAATGGTC TCGATC 516

(2) INFORMATION FOR SEQ ID NO:25

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 556 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

35 (ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

40 (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: G405

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25

45 GATCTCACAT TCTTCCTCAG AATTCTTCTT GTTACCTCTG CAAAATTTCA 50
TCCTTCAAAC TCAAAGCTCA TTATCTTTGG ACTCTGTGAC ACTCTTCTGA 100
TTCTCATATC ACTTCTTGAT TTTCTGTCAT TTCCTCACTA ACTCTCAGCT 150
CATAATCATA TAAAATCACT AAGACTCTTT TTATATTGTC ATGAAGCTCA 200
GGTATTTTCA CAGATTGAAC CATTTCCCTG TAGACAGCAA TGCTCAACAT 250
50 GAACCATTCA CATCCTTCTT CCAAAGCACA GACTCTTCTT GCCATCTGCG 300
TCATGCCCAT GCTCATGTGC ATGGAGCCTG GTTCATTATC TTCCAAAATC 350
AAGCTTCCCC CACTTGATT CTCTTTTCTT TTCTTTCCTT TCCTTTTCCTC 400
TTTTCCTTTT CCCTTTCCTT TTCCTTACCT TTCCTTTCCT TTCCTTTCCT 450
CTCCTCTTTT CTCTTTTCTT TTCTTTTCTT TTCTTTTCTT TTCCTTTCCT 500
55 TTCNTTTCTT TTATTGTCAC CTCACCTCTG CCAAGGCTGG GATGGCAGTA 550
ANCACG 556

(2) INFORMATION FOR SEQ ID NO:26

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 335bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: G475

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 15q22.3

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26

GATCACGCCA	TTGCACTCCA	GCCTGGGCGA	CTGAGCAAGA	CTCAGTCTCA	50
AAGAAAAGAA	AAGAAAAGAA	AAGAAAAGAA	AAGAAAAGAA	AAGAAAAGAA	100
AAGAAAAGAA	AATTGTAAGG	AGTTTTCTCA	ATTAATAACC	CAAATAAGAG	150
AATTCTTTCC	ATGTATCAAT	CATGATACTA	AGCACTTTAC	ACACATGTAT	200
GTTATGTAAT	CATTATATCA	TGCATGCAAG	GTAATGAGTA	TTATTTTCCT	250
CATTTTATAA	AAGAGGAAAC	TGATGTTTGA	GGCTACTTTG	CTTAAGACCG	300
CAGAACTAGC	AAAGGAAAAG	AGAAGTGAAT	GTATC		335

(2) INFORMATION FOR SEQ ID NO:27

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 333 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: G539

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 15q26.2

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27

GATCGTGCCA	CTGCACTCCA	GCCTGGGCAA	CAGAGTAAGA	CTCAGTCTCC	50
AAAAAAAAAA	AAAGAAAGAA	AGAAAAAGAA	AGAAAGAAAG	AAAGAAAGAA	100
AAGAAAAGAA	AAGAAAAGAA	AAGAAAAGAA	AAGAAAAGAA	AAGAAAAGAA	150
AAGAAAAGAA	AAAGAAAAG	AAAAAATAAA	GAGGTGAACG	GTACTGAACA	200
GAAACTAAGA	AGGCTGAGAG	CCAACTCTGA	GGTAACAGCT	AGGAGCTGAA	250
GCAGGAAAGC	TAAAATCTGC	CCCAGTCCCA	TTGCTGATAG	ACTCACCATT	300
TACTAACAGA	GAAACCATT	CTCCTTTTAG	ATC		333

(2) INFORMATION FOR SEQ ID NO:28

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1011 bp

(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

5 (ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

10 (A) LIBRARY: plasmid, pGem3Zf(+)
(B) CLONE: S023

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28

15 CTGTACTGAA TTACAGCCCC AAATCTGGGT CAACTGGGGA GAGACGACGA 50
GGATTAGGGT TCCAAGGTGA AACTGTGCCA TTGCGCTCCA GCCTGGGCAA 100
CAAGAATGAA ACTCTCTTAA AATAAAATAA AATAAAATAA AATAAAATAG 150
CCTAAGGATG CATTCTCAG AACTTATCCC TGTGTGTTCAA TGATGTGTGT 200
CTATACAGTG GGGCCATAAC TAAGACGTAT GTTGCCCAAG CTGGCAAGAT 250
20 AGCTCTGACC TTCTCTTGGG CCCCTCATTT CCCCCAAACA CAGGTTGTCT 300
GCAGTCTTGA CCAATGGCTG CCAGGGCATG GACTCCGCTG CAGGGGCCAG 350
TGGGAGGCC CAGCTCAGGC AAAAGCACAG GCAGATATTT CAGGAGTCTG 400
CTAGGGCTGG CACTGAGGGC AGAGACAGAG GGGTCTCCCT GTCCTTTGGA 450
GAACCTCACG CTGCAGAAAT TCCAGACTGA ACCTTGATAC CGAGTAGGGG 500
25 AGGAGCTGTC TGCGGGTTTG AGCCTGCAGC AGGAGGAAGG ACGTGAACAT 550
TTTATCAGCT TCTGGTATGG CCTTGAGCTG GTAGTTATAA TCTTGCCCT 600
GGTGGCCAG GGCTACAGTC ATCCTAGCAG TCCCCGCTGA AGTGGAGCAG 650
GTACAGTCAC AGCTGTGGGG ACAGCAATGC TGGCCAAGGG TCTTCCCCCA 700
CGCTCAGTCC TGGTCAAAGG CTGCCAGACC TTTCTGAGTG CCCCCAGGGA 750
30 GGGGCTGGGG CGTCTCAGGG TGCCCACTGG CGAGGGAGCT GGCATCTCCA 800
CCCGCAGTCC TCGCCCCTTC AATGAGATCC CCTCTCCTGG TGACAATGGC 850
TGGCTAAACC TGTACCATTT CTGGAGGGAG ACGGGCACAC ACAAGTCCA 900
CCTTCACCAT GTCCAGAATT TCCAGAAGTA TGGCCCGATT TACAGGTAAG 950
35 CCTGGCAGAG GGTGGGAGCC GAAGGACAGG GAGGAGGAGG GGACTGGGTA 100
0GCCCTGCTGT A 1011

(2) INFORMATION FOR SEQ ID NO:29

(i) SEQUENCE CHARACTERISTICS:

40 (A) LENGTH: 1011 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

45 (ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

50 (B) CLONE: S071

(viii) POSITION IN GENOME:

(A) CHROMOSOME/SEGMENT: 6q26-27

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29

55 CTGTACTGAA TTACAGCCCC AAATCTGGGT CAACTGGGGA GAGACGACGA 50
GGATTAGGGT TCCAAGGTGA AACTGTGCCA TTGCGCTCCA GCCTGGGCAA 100
CAAGAATGAA ACTCTCTTAA AATAAAATAA AATAAAATAA AATAAAATAG 150

	CCTAAGGATG	CATTTCTCAG	AACTTATCCC	TGTTGTTCAA	TGATGTGTGT	200
	CTATACAGTG	GGGCCATAAC	TAAGACGTAT	GTTGCCCAAG	CTGGCAAGAT	250
	AGCTCTGACC	TTCTCTTGGG	CCCCTCATTT	CCCCCAAACA	CAGGTTGTCT	300
	GCAGTCTTGA	CCAATGGCTG	CCAGGGCATG	GACTCCGCTG	CAGGGGCCAG	350
5	TGGGAGGCC	CAGCTCAGGC	AAAAGCACAG	GCAGATATTT	CAGGAGTCTG	400
	CTAGGGCTGG	CACTGAGGGC	AGAGACAGAG	GGGTCTCCCT	GTCCTTTGGA	450
	GAACCTCACG	CTGCAGAAAT	TCCAGACTGA	ACCTTGATAC	CGAGTAGGGG	500
	AGGAGCTGTC	TGCGGGTTTG	AGCCTGCAGC	AGGAGGAAGG	ACGTGAACAT	550
	TTTATCAGCT	TCTGGTATGG	CCTTGAGCTG	GTAGTTATAA	TCTTGGCCCT	600
10	GGTGGCCAG	GGCTACAGTC	ATCCTAGCAG	TCCCGCTGA	AGTGGAGCAG	650
	GTACAGTCAC	AGCTGTGGGG	ACAGCAATGC	TGGCCAAGGG	TCTTCCCCCA	700
	CGCTCAGTCC	TGGTCAAAGG	CTGCCAGACC	TTTCTGAGTG	CCCCCAGGGA	750
	GGGGCTGGGG	CGTCTCAGGG	TGCCCACTGG	CGAGGGAGCT	GGCATCTCCA	800
	CCCGCAGTCC	TCGCCCTTC	AATGAGATCC	CCTCTCCTGG	TGACAATGGC	850
15	TGGCTAAACC	TGTACCATTT	CTGGAGGGAG	ACGGGCACAC	ACAAAGTCCA	900
	CCTTCACCAT	GTCCAGAATT	TCCAGAAGTA	TGGCCCGATT	TACAGGTAAG	950
	CCTGGCAGAG	GGTGGGAGCC	GAAGGACAGG	GAGGAGGAGG	GGACTGGGTA	1000
	GCCCTGCTGT	A				1011

(2) INFORMATION FOR SEQ ID NO:30

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (B) CLONE: S085

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 22q11

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30

	AGTCAAATGA	CGGTCATAGT	TTGGGTGATG	GTCACGGCTC	AGGTTCTTTT	50
40	TTACACGTGC	TTGCTTTGGT	TGTTGTTGTT	GTTCTTTGTT	TTCTTGAGGC	100
	AGTATCTGGC	TGTGTCTCCC	AGGCTGGCGT	GCAATGGCAG	GATCATAGCT	150
	CACTGCAACC	TCAAACCTCT	GGCTGAAGCA	ATCTTTGTGC	CCTAGCCTCC	200
	CAAGTTGTTG	GGATTACAGT	CGTGCCCCAC	CATGCCTGGC	TAAGTTGTTT	250
	TTTGTTTTTT	GTTTTTTTTT	TTTTTTTTCG	GACAGAGTTT	TGCTCTTGTT	300
45	GCCCAGGCCG	GAGTGCAGTG	GTGTGATCTT	GGCTCTCTGC	AACCTCCCGG	350
	GTTCAAGCGA	TTCTCCTGCC	TCAGCCTCCC	AAAGTGATGG	GATTACAGGC	400
	CTGAGCCACT	GTGCCTGGCC	ACATGTGCTT	TCCCATTCGG	TCCTTGACGC	450
	AGATCTTTGA	GAGAGCTCAT	TTGACACTCA	GGAGATGCTT	CTCTAACCTG	500
	CTCAGAATCA	GGGCCCTGGG	TATTCAGGGA	GGTAGAGGGA	GCAGACTGCA	550
50	AAGCCAGTCG	TGCTCCCATC	GCTCCCACTT	CTCTCTCCCT	CTCCATGTTT	600
	TCTGTCTCCC	CCACCCAGCC	TAGGGCATTC	CTCCCCACA	GTCCAGCCTG	650
	CATCTGGCAC	AGTGTCACTG	CTCAGCCCAG	GGATACTCAC	AGCCTGGGTG	700
	CCTGGCTCCT	TTTTTCAGCT	CATCAAACCA	GGTAAAGGGA	GGTTCAGATT	750
	CTGCCAACCA	TTGACTCAAT	TCATCCAAAT	CTTCAATCAC	TGGAATCCTG	800
55	GGAGTGGCTG	GATTTGAACC	AGGACCTCTG	AGTACTATTG	CTAAGTAACT	850
	GGGGGTCTCA	GTGAAAGAGA	GAAAAGAGCT	GATAGGCCTC	TTCCTGTGTT	900
	ATCATGTCAG	GCCATCTTTT	GAAACTCTTT	TCTGCAATGC	TACTGAAGTA	950
	TTTATGCACG	TGACCTGTGC	TCTTCTGTCA	GTCTAGGGGT	GCTGGCTGAG	1000

(2) INFORMATION FOR SEQ ID NO:31

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY:

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY:
(B) CLONE: S125

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 22q11.2-qter

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31

AGTCAAATGA	CGGTCATAGT	TTGGGTGATG	GTCACGGCTC	AGGTTCTTTT	50
TTACACGTGC	TTGCTTTGGT	TGTTGTTGTT	GTTCTTTGTT	TTCTTGAGGC	100
AGTATCTGGC	TGTGTCTCCC	AGGCTGGCGT	GCAATGGCAG	GATCATAGCT	150
CACTGCAACC	TCAAACCTCT	GGCTGAAGCA	ATCTTTGTGC	CCTAGCCTCC	200
CAAGTTGTTG	GGATTACAGT	CGTGCCCCAC	CATGCCTGGC	TAAGTTGTTT	250
TTTGTTTTTT	GTTTTTTTTT	TTTTTTTTCGA	GACAGAGTTT	TGCTCTTGTT	300
GCCCAGGCCG	GAGTGCAGTG	GTGTGATCTT	GGCTCTCTGC	AACCTCCCGG	350
GTTCAAGCGA	TTCTCCTGCC	TCAGCCTCCC	AAAGTGATGG	GATTACAGGC	400
CTGAGCCACT	GTGCCTGGCC	ACATGTGCTT	TCCCATTCGG	TCCTTGACAGC	450
AGATCTTTGA	GAGAGCTCAT	TTGACACTCA	GGAGATGCTT	CTCTAACCTG	500
CTCAGAATCA	GGGCCCTGGG	TATTCAGGGA	GGTAGAGGGA	GCAGACTGCA	550
AAGCCAGTCG	TGCTCCCATC	GCTCCCACTT	CTCTCTCCCT	CTCCATGTTT	600
TCTGTCTCCC	CCACCCAGCC	TAGGGCATTG	CTCCCCCACA	GTCCAGCCTG	650
CATCTGGCAC	AGTGTCACTG	CTCAGCCCAG	GGATACTCAC	AGCCTGGGTG	700
CCTGGCTCCT	TTTTTCAGCT	CATCAAACCA	GGTAAAGGGA	GGTTCAGATT	750
CTGCCAACCA	TTGACTCAAT	TCATCCAAAT	CTTCAATCAC	TGGAATCCTG	800
GGAGTGGCTG	GATTTGAACC	AGGACCTCTG	AGTACTATTG	CTAAGTAACT	850
GGGGGTCTCA	GTGAAAGAGA	GAAAAGAGCT	GATAGGCCTC	TTCCTGTGTT	900
ATCATGTCAG	GCCATCTTTT	GAAACTCTTT	TCTGCAATGC	TACTGAAGTA	950
TTTATGCACG	TGACCTGTGC	TCTTCTGTCA	GTCTAGGGGT	GCTGGCTGAG	1000

(2) INFORMATION FOR SEQ ID NO:32

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (B) CLONE: S132

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 22

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32

GGTGTGACCT TATCCTCTCT GAACCTCAGT TTCCTCATCC GTAAAATGAA 50
AAGCTGCTAG ATTGTTGTAA AAAAATTAAA TGGAATAGGC TAGGCGCGGT 100
GGCTCACGCC TGTAATCCCA GCACTTTAGA AGGTCGAAGA GGGTGGATCA 150
CTTGAGGTCA GGAGTTTTGA GACCAGCCTG GCCAACACGG TGAAACCCCA 200
TCTCTACTAA AAATAAAAAA TTAGCTNNGG TCGGTGGCT CACACCTGTA 250
ATCCCAGCAC TTTGGGAGGC TGAGACGGGT GGATCACCTG AAGTCAGGAG 300
TTCAAGGCCA GCCTGGGCAA CATGGTGAAA CCACGTCTCT ACTAAAAATA 350
CAAAAATTAG CCAGGTGTGG TGGCACACGC CTGTAGTCCC AGCTACTTGG 400
GAGGCTGAGG CGGAAGAATC GCTTGAACCC AGTAGGCAGA GGTTGCAGTG 450
AGCCGAGATA AGAGTCACTG CACTCCAGCC TGGGTGACAG AGCAAGACTC 500
CCTCTCAGAA AATAAAATAA AATAAAATAA AATAAAATAA AATAAAATAA 550
AATAAAATTC TAAAAGGGCT GGCATTTGCC TAGCACTTAT ATGCCCAATA 600
AGTAATAGCT ATCAATATCC CCACCCCTAC CACTGTGCTG AAATTTAGTT 650
TCTTTTTTGTG ACCCCCCATT AGACTTAAGG CAGAATTCTC ACCGTACTCC 700
TCTGTAAATT TCTGGTTCCCT GGCACATAGT TGGGTCTCAG TGAAACATGG 750
TGAGTGAATG AGCAAATGCA AGGAATCTCC AGGCCATCTG GGAGCCCTCC 800
CAGGCGGGTG AGTTCGGGAA ACTCATAGTC TGTCTCAAT GGCCCACTGA 850
AAGGTAGAGA GTTCTGGGTC CCACCTCCGC ACCCCCATCT CCTGACTCAC 900
TGCTGAAAAA TAAATAAATA AATAAAATAA CACTTATCCG GAGCCTCCCA 950
CATGCCTTGC CAGGACTGCA AGGAGCCCAG CAGAATGATG ACCGGCGTGC 1000

(2) INFORMATION FOR SEQ ID NO:33

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (B) CLONE: S136

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 22q12-qter

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33

CCACTACATA TCCCATACAG GCTAATCAAC ATGTCAAAGT TCACACAGTT 50
ATTGTGTACC CCTGGGCTCA ATCTCAAGTG TTCTGGTTGG TCGTCCAAGG 100
TTACTTTTTT TTTTTTTTTT TTTTTTTTGA GATGGAGTCT TGCTCTGTTG 150
CCCAAGCTGG AGTGCAATGG CATGATCTTG GCTCACTGCA ACCTCCGCCT 200
CCTGGGTTCA AGGGATTCTC CTGCCTCAGC CTCCTGAGTA GTTGGGATTA 250
CAGGCATGCA CTACCATGCC TGGCTAATTT TTGTATTTT AGTAGAGGTG 300
GAGTTTCTCC ATGTTGTTCA GGCTGGTCTT GAACTCCCAA CCTCAGGCAA 350
TCCACCTCGG CCTCCCAAAG TACTGGGGTT ACAGGCATGA GCCACTGCGC 400
CTGGCCCCAAG GTTACTTTTC ACTACATCTT CCTACCTGTA TCACTTACTG 450
CCGTGTGTAT AACTTCCACA TTTTCTTTCT TTTCTTTTCT TTTCTTTTCT 500
TTTCTTTTCT TTCTTTTCTT TCTTTCTTTC TTTCTCTCTC TTTCTCTCTC 550
TCTTTCTCTC TGTCCCCTCC TTCCTTCTCC TTCCTTCTTC CTTCTTCTCT 600
TCCTTTCTCT CCTTCCTTCC TTCTTTCAAC ACAGAGTCTC ACTCTGTCAC 650
CTAGGCAGGA GTGCAGTGGC CCAGTCTCAG CTCACTGCAA CCTCCGCCTC 700
CTGGGCTCAA GCAATTCTCT CACCTCAGCC TCCCAGTAG CTGGGATTAC 750
AGGCATGTGC CACCATACCC AGCTAATTTT TGTATTTTTA GTAGAGACGG 800

GATTTACCA TATTTTCCAA GCTGGTCTCG AACTCCTGAC CTCAAGGGAT 850
 CTGCCCCGACT CAGCCTCCCA AACTGCTGGG ATCATAGGTG TGAGCCATCA 900
 TGCTTGGCCC ACACCTTCTA TGTTAATCTA ATTTAGATGA TTTAATCTAT 950
 ATACAGTTTC TATATTAATC TAATTTAGAT GACTTAATCT ATATACAACT 1000

(2) INFORMATION FOR SEQ ID NO:34

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

(B) CLONE: S159

(viii) POSITION IN GENOME:

(A) CHROMOSOME/SEGMENT: 21q22-qter

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34

AAACCCCGTC TCTACTAAAA ATACAAAAGT TAGTTGAGCA TGGTGGCAGC 50
 GGCCTGTAAT CCCACCTATA ATCCCACCTA CTCGGGAGGC TGAGGCAGGA 100
 GAATCGCTTG AACCCAGGAT GGGGCGATTG CAGTGAGCCG AGATCGTGCC 150
 ACTGCACTCC AGCCTGGGTG ACAGAGCGAG ACTCCATCTC AAAAAAAAAA 200
 AAAAAAAAAACA GAATCATAGG CCAGGCACAG TGGCTAATTG TACCTTGGGA 250
 GGCTGAGACG GGAGGATCGA GACCATCCTG GGCACCATAG TGAGACCCCA 300
 TCTCTACAAA AAAAAAAAAA AATTTTTTTT AAATAGCCAG GCATGGTGAG 350
 GCTGAAGTAG GATCACTTGA GCCTGGAAGG TCGAAGCTGA AGTGAGCCAT 400
 GATCACACCA CTACACTCCA GCCTAGGTGA CAGAGCAAGA CACCATCTCA 450
 AGAAAGAAAA AAAAGAAAGA AAAGAAAAGA AAAGAAAAGA AAAGAAAAGA 500
 AAAGAAAAGA AAAAACGAAG GGGAAAAAAA GAGAATCATA AACATAAATG 550
 TAAAATTTCT CAAAAAATC GTTATGACCA TAGGTTAGGC AAATATTTCT 600
 TAGATATCAC AAAATCATGA CCTATTAAAA AATAATAATA AAGTAAGTTT 650
 CATCAAAACT TAAAAGTTCT ACTCTTCAAA AGATACCTTA TAAAGAAAGT 700
 AAAAAGACAC GCCACAGGCT AAGAGAAAGT ACTTCTAATC ACATATCTAA 750
 AAAAGGACTT GTGTCCAGAT TAAAGAATTC TTACACATCA ATAAGACAAC 800
 CCAATTAAAA ATCGGCAAAA GATTTGAAGA GATATTTAAC CAAAGAAAAC 850
 ATATAAATGT GTCCGGGCGC GATGGTAATC CCAGCACTTT GAGAGGCCGA 900
 GGCAGGCGGA TCACTTGAGG TCAGGAGTTT AGGACCAGTC TGGCCAACAT 950
 GGTGAAACCC TGTCTCTAAT AAAAATACAA AAATTAGCTG GGTGTGGTGG 1000

(2) INFORMATION FOR SEQ ID NO:35

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1400 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

(B) CLONE: S176

(viii) POSITION IN GENOME:

(A) CHROMOSOME/SEGMENT: 7q21-7q22

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35

5	CCATATGTTT	GTTTCCTCTA	CTACTGCTCC	TCCCTGACCC	TTAAGAAACA	50
	CTGCCATAGA	GCCCTACAGC	TTGATGGGAG	AAGTCCTATC	CCTTAGGCAT	100
	GGAAAGCTAT	TAAGAATGTG	AGAACTGTGT	ATGAGGAAAC	TAATTTAATA	150
	ATTCCTTAGA	ATGGAACCAG	TTGAAAATTT	CCAGCTCCAC	AAACTGAAGT	200
10	GAAATCATTT	TTTCTCCACT	CCTTACTAGT	AAATTTACTG	TTCTATGTTA	250
	AAAGAAAAAA	AAAATCAACC	AGCATTTTAA	TTATGGCAAC	CTAAAATGTG	300
	TCCAGTATCT	TAGAATAATT	TCCCCACTGA	CCTATTCCTC	TGTAATAGTA	350
	AAACATATAC	ACAAATGTTT	ATAGCTACAT	TAGTCATAAT	AGCCGAAAGG	400
	TAAAAACAAC	CCAAATGCCC	ATCAACTAGA	TAAATGTATT	TAAAAAATAT	450
15	GACCCAGGCG	AGGTGGCTCA	GGCCTGTAAT	CCCAGCACTT	TAGGAGGCTG	500
	AGGTGGGTGG	ATGACCCAGG	AGTTCAGGC	CAACCTGGTG	AACATAGTGA	550
	GACCCCATCT	CTACAAAAC	AAAAATAAAA	AATTAGCCAG	ATGTTGTGGT	600
	GTACACCTGT	AGTCCAAGCT	ACTCAGGACG	GTGAGGAAGG	AAGATCACTT	650
	GAGCCCGGGA	GTTTGAGGCT	GCAGTGAGCT	ATGATCACAC	CATGGCACTC	700
20	CAGCCTGGGC	AAGAAAGTGA	GACCAAATTA	TTAAAAAATA	AAAAAATAAA	750
	AAAAAATAAA	AAAAAACAGA	AGAAGAAGCA	CTGATGCATA	GGCCATGAAT	800
	AAACTTTGTA	AATATTATGC	TAAGTAAAAG	AAGCCAGAGA	TGAAAATCAC	850
	ATATTGTAAT	TGTATGACTC	CATGTGTTTT	TTTAAAAAGG	TCCACACAGA	900
	AAAGCTATTA	GTAGTTGCTC	ACAGCTGGAA	GGCAAGGAGG	GCACGTAAGT	950
25	GGGTGATAGC	TATAGGACAC	AAGGATTATT	TCTGAAATGA	TGAAAATGTT	1000
	CTAAAACCGT	GGTAATGGTT	TTACAACCCT	GTGAATATAC	TAAAAACTAC	1050
	TGAATTGTAT	ACTTAAAATG	GGTGAATTAG	ACGGCATATG	AATTATATAT	1100
	CAATAAAGGT	ATTACCCAAG	AAAAAGAATA	CAGTATCTTC	ATATTCTATA	1150
	TTCTCCTCTC	TTAGCTTTAC	TCAGATTTCA	CCTCTGTCCA	GTCACCTTTC	1200
30	CACATTAAC	CCAGGCAACT	CCAAAAGTTA	TTCTTCCTGC	TTCATTCATC	1250
	CCCCAAATAA	ATTACATTCA	CTACTGCGAA	GATAACTGGC	CAGAAACTCA	1300
	ATTCCTGAAG	TTCTGGCAAA	TGGTTCCTAG	ACTCCAAATG	GAGCAGAATA	1350
	ATTTGCAACT	GGGCTTAAAC	ACGATTGTCT	TTTTTAAGGC	ATCCTCAGTT	1400

(2) INFORMATION FOR SEQ ID NO:36

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1250 bp

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Double

(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

(B) CLONE: S189

(viii) POSITION IN GENOME:

(A) CHROMOSOME/SEGMENT: 22q11.2-qter

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36

55	GTTGCTCTGG	CGATTGCGAA	CTCGAAAATG	ACACTTACTA	TTCAGCTAGA	50
	GATTAGAATC	TCAAGCAGTA	GGGCATTTTT	TAATAAAAAA	TTAAATTAAA	100
	AATAGATTTG	CCATTGTCTG	CTTAATAAAA	CTAGTAGCTC	TGCTGGCTTA	150
	GAGGGGAAAT	AACATATTTT	TTCGGATTTT	TATATATTCA	TCTGAGCAGT	200
	GCTAAAAAAT	AAAACAAAGT	TACTAATATT	CATATCTTGA	GCAATTGTAC	250

	ATTGCTTCTA	ACTATACATT	CAATCTCTCT	GGCACATCCA	CTGTGGCCCT	300
	GAGCAGCCAG	TACAGGCTCT	TCTACCAAAA	CGAAGCAAGC	CACTCCAAAA	350
	CCTGACGCGT	GCAGGTGTCA	CGAAACACCA	GGTGCAGCTT	GACAGATGTG	400
5	AGCCAAATAA	GGAAACATTC	AGCCCAGCAC	TGCCCAACAG	TCATGATGTA	450
	TATTTTCTAC	ATCTGTGCTC	TAAATATATG	TGGCCACTAG	CTGCAGGTGG	500
	CTATTGAGAC	TAAGGAACTG	TATTTTAAAT	TTTATTTCAT	TTCAACTCAT	550
	TTAAAGTAGC	CACATGCCGC	TAATGGCTAC	TGATCTAGAG	GGCAGCTGGG	600
	ATGTTACTCT	TGAGAATGTC	TCCAGCATTT	TACCTGTTGC	TCTCTCTCAC	650
	TCACATTTCC	CATTCTAGCA	CAAACAAAAC	AAAACAAAAC	AAAACAAAAC	700
10	AAAACAAAAC	AAAACAAAAA	AACCACAACA	CCTACAGTTC	TCCAAACAGG	750
	GCATCTGTTT	TGTTCTCTCT	GGGGGGTCTT	GTCTATGTTG	TTCACGTGGC	800
	CCTGGATTTT	CATACTCCTA	GCCTTCCTGG	AAGACATCCT	TTTCATCCTC	850
	ACAACCCAAC	CCAGGCTTTA	TCTCTTCTGT	GAAGCTGTCC	TTGATTTTCC	900
	GTTCTATCTT	CCCTGCTTGT	GAATGGGTCA	GCTCTCCTTC	CCCACCGCCC	950
15	TGTGCGTGTG	AACATCTTTG	TTCAGTATAC	TGCAGTGGGT	CGGGAGTATG	1000
	TCCCTTCCAG	ACTGGAAGGC	AGAGAGGGTG	GCTGTAAGGA	TTGGCACTTT	1050
	GGGCCAGGCA	CAGTGCTCAT	GCCTGTAATC	CCAGCACTTT	GGGAGGCTGA	1100
	GGCAGGAGAA	TCGCCCCGAC	CCAGGAGACA	GAGTTTGCAG	TGAGACGAGA	1150
	TTGCACCACT	GCACTCTAGC	CTGAGGGATA	GAGCAAGACT	CCCTCTCAAA	1200
20	AAAATAAATA	AATAAATAAA	TAAATAAATA	AAAATAAAAA	ATTAAAGAGG	1250

(2) INFORMATION FOR SEQ ID NO:37

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1200 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (B) CLONE: S199

(viii) POSITION IN GENOME:

- (A) CHROMOSOME/SEGMENT: 6q21

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37

40	TTTCATGTTT	ACAGATTGGA	TTAATATTGT	TAAACTGTCC	ATACTACCCA	50
	AAGCAATCCA	TAGATTCAAT	GCAACCCTGA	TATAGTTTGA	ATGTATGTAG	100
	GCACCAAAAT	CTCATGTTGA	ACTTTAATCC	CCAGTGTTGG	AGGTGGAGCC	150
45	TGGTGTAAGA	TGTTTAGATT	ATGAAGGTGA	ATCCCTCATG	AACGGCTTGG	200
	GCCATCTGCT	TGGTGATAAG	TGAGCTCTTG	TTCTGAGTTC	ACATGAGATA	250
	CAGTCATTTA	AAAGCCTGTG	GTACCCAAAC	TCTCTCTTGC	TCTTGCTTCT	300
	GTTACGCCCA	TGTGATATAC	CTGCTATCCT	TTGCCTTTGC	CTTCTGCCAT	350
	GATTGGAAGC	TTCCTGAGTC	CTCCCCAGAA	ACAGATGTAA	CTATGCTTCC	400
50	TGTACAGCCT	GCAGAACCAA	GAACAAACTG	AAACTCTTTT	GTTATAAATT	450
	GCCCAGGATT	AGGTGGGTGT	TTTGTTTTGT	TTTGTTTTGT	TTTGTTTTGT	500
	TTTTTGAGAT	GGAGTCTCGC	TCTGTCTCCC	AGGCTGGAGT	GCAATGATAC	550
	AATCTCGGCT	CACCTGCAAC	TCCACCTCCC	CGTTCAAGCA	ATTCTCCTGC	600
	CTCAGCCTCC	TGAGTAGCTG	GGATTACAGG	CGCACGCCAT	CATGCCCGGC	650
	TAATTTTTGT	ATTTTTAGTA	GAGACGGGGT	TTCACCACAT	TGGTCAGGCT	700
55	GGTCTCGAAC	TCCTGACCTC	ATGATCCACC	CGCCTTGGCC	TCCCAAAGTG	750
	CTGGGATTAC	AGGCGTAAGC	CACCATGCCC	AGCCAGGTGG	TTTTTTTATAG	800
	TAGTGCAAGA	ATGGCCGAAT	ACAAACCCCT	ATCAAAATAC	CAATGACATT	850
	TGTCAGGGAC	ATTTTTAAAA	ATTCTGAAAT	TTATATGGAA	CCACAAAAGA	900

CCCAGAATAG CCAAAACTAA CCTGAGCAAA AAGAACAAAC CTGGAAGAAT 950
CACATTACCT GACTTCAAAG TGTACTACAG AGCTCTTATA ATCAAAACAT 1000
CATGGTACTA GCATAACAAC AGACACATAG ACCAATGGAA CACAATAGAG 1050
AACCCAGAAA CAAATCCATA CACCTACTGT GAACTCATTT TTGACAAAGG 1100
TGCCAAGAAC ATACATGGGA GAAAGGACAG TATCTCCAAA TAAATGGTGC 1150
TGAGAAAAGT GGATATACAT ATGCATAAGA ATGTAAC TAG 1200

(2) INFORMATION FOR SEQ ID NO:38

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

(B) CLONE: S040

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38

GCTGCAATAA ACACGGGAGT GTAGGTATCT TAAAAGAAG GTGGTGATTT 1900
CATCTCTTCT GGGTATGTAT CCAAATAGG GTCAGTGTG GGTTATAAGG 1950
TGGTTAGGTT TTGAATTTCT TTAGGAACCT CCATACTGTT TTCCATAATG 2000
GGTGACCAA TCATCATTCC CACCAACAAT GTACAAGTGT TTTATTTTCT 2050
TCACACCCTC ATCAATATTT ATCTCTTGTC TTTTATAA TAGCCATCCT 2100
AAAGACTGTA AGGCGTTTTA TTTCTAATCT CAGATTTTAC TGTAGAAACA 2150
GTGATGACAC AGTCTCCAGC TTCCCTGTCT TTGTCTCTGG AGAAAAAGC 2200
CACCCCTGACT TGCAGGGCCA GTCAGTGTTA GCAGCTACTA AGCCTGGTAC 2250
CAGAAGAAAC CTGAGCGGGT TCCCAGGCTC CTCATCTATG GTACAGCCCT 2300
GATTTGTGAT AGTGGGTCGG GGACAGGGCT TACTCTCACC ATCGGCAGCC 2350
TGGAGCCTGG AGCCTGGAGA TTTGCACTTC ATCACTGTTA TCAGCATAGT 2400
AGTTGGTGTC CCATACTGAT TCGACATGCA ACAAACCT CCAGGAGACC 2450
TAAGGTGTTT ATTTGATTAT ACTACCTGCT TCCTTTTATG TCATCTGATG 2500
TGGTGTGCT CAGTTTATG ATCTCTGCTT TGATTGGAAA TTCTGAGGTT 2550
CTCAAAAGTA ATTCCTTATA ATATTATAG TTTCACTCAT GGATTTTTTT 2600
CTCAGACCCA AATGTACAGC CAGGTTTCAGG CACAATTTCA TGGTCAAGGC 2650
CATTGGATCA GACTCACATG AGTGGACGCC TCTAAAGGTC CTGGCCAGTG 2700
CGATAAAGTA GCAGCGACAA TGATAAAGAA GAAGAATTAG AAAGGCAGAA 2750
TTAAAGGTAT AACAATTCAC TGATGAAAGG ACTGTGTGGG GGAGAAATTT 2800
CTAATTGTCT ACACAGAAAT TATTAGAATT AATGAGATAC ATAGCAAATT 2850

(2) INFORMATION FOR SEQ ID NO:39

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1050 bp
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double
(D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY:
(B) CLONE: S066

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39

	GGGGCCTAGC	CCAGTTGGAG	GGACAAGAGC	TGGAAACTGG	GTTCCTTAGG	50
	GTGGTGCCAG	AGTGGGCAGA	GACCTCTGGG	CAGCCCACGT	CCAAGTCCAG	100
5	AGCAAGGGGA	GGCTCATCCT	AGAAAAGAGG	CCAGAGGAGC	CATAACCACC	150
	ATTGTTTCCTT	GGGTAAAGGA	GTCCTTTTTT	AAAACCATCA	AAACTAAGAA	200
	TCCAGTGCAT	TATGAATCCA	AGGGGTGAGG	CTCAGTGTGC	CAATGCCCCA	250
	GAACAGTCTA	AGAAAGCTCC	TTTTCCCTTT	CCAGGCAGCT	CGAGCTTTAC	300
	CTTCCCAAAT	TCTCCATTGA	GGGCTCCTAT	CAGCTGGAGA	AAGTCCTCCC	350
10	CAGTCTGGGG	ATCAGTAACG	TCTTCACCTC	CCATGCTGAT	CTGTCCGGCA	400
	TCAGCAACCA	CTCAAATATC	CAGGTGTCTG	AGGTGGGGTC	AGAAGCTCCT	450
	ATGCATCTGC	TTCCCAAGAT	CTATTCTGTT	CTATTCTTTC	TATTCTACTC	500
	TACCCCATTT	CATTCCATT	CATTCCACTC	AACTCCACTC	CACTCCACTC	550
	CACTCCAGTT	CACTCTATT	AATTCCACTC	CACTCCAGTT	CACTCTATT	600
15	AATTCCACTC	CACTCCACTC	CAGTTCACTC	TATTCCAGTT	CACTCCACTC	650
	CACTCCACTC	CACTCCAGTT	CACTCTATT	CATTCCACTC	CATTCCACTC	700
	CTCCACTCCT	CTCATCCACT	CCACTCTACT	CCTCCACTCC	ACATCTCCAC	750
	TCCACTCCTC	CACTCCACTC	CTCCACTCCA	CTCATCCACT	CCACTCCTCC	800
	ACTCCACTCC	TCCACTCCAC	TCCTCCACTC	CACTCCACTC	ATCCACTCCA	850
20	CTCTTCCATT	CCACTCCATT	CCACTCCTCC	ACTCCACTCT	TCCACTCCAC	900
	TCCATTCCAC	TCCTCCACTC	CACTCCACTC	TATTCTATT	TATTCCATT	950
	CATTCTACTC	TATTCTATT	CATTCCATTG	CAGTCAACTC	CACTCCACTC	1000
	TCTACTATT	TATTCCACTC	CTCTCCCCTC	CACTCCATT	CATTGCAGTC	1050

(2) INFORMATION FOR SEQ ID NO:40

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4580 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY:
- (B) CLONE: S077

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40

	GGATCCCAAT	TCATTCCGGG	CTGACACGCT	CACTGGCAGG	CGTCGGGCAT	50
	CACCTAGCGG	TCACTGTTAC	TCTGAAAACG	GAGGCCTCAC	AGAGGAAGGG	100
	AGCACCAGGC	CGCCTGCGCA	CAGCCTGGGG	CAACTGTGTC	TTCTCCACCG	150
45	CCCCCGCCCC	CACCTCCAAG	TTCCTCCCTC	CCTTGTTGCC	TAGGAAATCG	200
	CCACTTTGAC	GACCGGGTCT	GATTGACCTT	TGATCAGGCA	AAAACGAACA	250
	AACAGATAAA	TAAATAAAAT	AACACAAAAG	TAACTAACTA	AATAAAATAA	300
	GTCAATACAA	CCCATTACAA	TACAATAAGA	TACGATACGA	TAGGATGCGA	350
	TAGGATACGA	TAGGATACAA	TACAATAGGA	TACGATACAA	TACAATACAA	400
50	TACAATACAA	TACAATACAA	TACAATACAA	TACAATACAA	TACAATACGC	450
	CGGGCGCGGT	GGCTCATGCC	TGTCATCCCG	TCACTTTGGG	ATGCCGAGGT	500
	GGACGCATCA	CCTGAAGTCG	GGAGTTGGAG	ACAAGCCCGA	CCAACATGGA	550
	GAAATCCCGT	CTCAATTGAA	AATACAAAAC	TAGCCGGGCG	CGGTGGCACA	600
	TGCCTATAAT	CCCAGCTGCT	AGGAAGGCTG	AGGCAGGAGA	ATCGCTTGAA	650
55	CCTGGGAAGC	GGAGGTTGCA	GTGAGCCGAG	ATTGCGCCAT	CGCACTCCAG	700
	TCTGAGCAAC	AAGAGCGAAA	CTCCGTCTCA	AAAATAAATA	CATAAATAAA	750
	TACATACATA	CATACATACA	TACATACATA	CATACATACA	TAAATTAATA	800
	TAAATAAATA	AAATAAATA	AATAAATGGG	CCCTGCGCGG	TGGCTCAAGC	850

CTGTCATCCC	CTCACTTTGG	GAGGCCAAGG	CCGGTGGATC	AAGAGGCGGT	900
CAGACCAACA	GGGCCAGTAT	GGTGAAACCC	CGTCTCTACT	CACAATACAC	950
AACATTAGCC	GGGCGCTGTG	CTGTGCTGTA	CTGTCTGTAA	TCCCAGCTAC	1000

(2) INFORMATION FOR SEQ ID NO:41

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (A) LIBRARY:
- (B) CLONE: S097

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41

GGACATGAGG	CTTCCCAGCC	AACTGCAGGT	GCACAACATA	AATGTATCTG	50
CAAACAGACT	GAGAGTAAAG	CTGGGGGCAC	AAACCTCAGC	ACTGCCAGGA	100
CACACACCCT	TCTCGTGGAT	TCTGACTTTA	TCTGACCCGG	CCCACTGTCC	150
AGATCTTGTT	GTGGGATTGG	GACAAGGGAG	GTCATAAAGC	CTGTCCCCAG	200
GGCACTCTGT	GTGAGCACAC	GAGACCTCCC	CACCCCCCA	CCGTTAGGTC	250
TCCACACATA	GATCTGACCA	TTAGGCATTG	TGAGGAGGAC	TCTAGCGCGG	300
GCTCAGGGAT	CACACCAGAG	AATCAGGTAC	AGAGAGGAAG	ACGGGGCTCG	350
AGGAGCTGAT	GGATGACACA	GAGCAGGGTT	CCTGCAGTCC	ACAGGTCCAG	400
CTCACCCCTG	TGTAGGTGCC	CCATCCCCCT	GATCCAGGCA	TCCCTGACAC	450
AGCTCCCTCC	CGGAGCCTCC	TCCCAGGTGA	CACATCAGGG	TCCCTCACTC	500
AAGCTGTCCA	GAGAGGGCAG	CACCTTGGAC	AGCGCCCACC	CCACTTCACT	550
CTTCCTCCCT	CACAGGGCTC	AGGGCTCAGG	GCTCAAGTCT	CAGAACAAAT	600
GGCAGAGGCC	AGTGAGCCCA	GAGATGGTGA	CAGGGCAATG	ATCCAGGGGC	650
AGCTGCCTGA	AACGGGAGCA	GGTGAAGCCA	CAGATGGGAG	AAGATGGTTC	700
AGGAAGAAAA	ATCCAGGAAT	GGGCAGGAGA	GGAGAGGAGG	ACACAGGCTC	750
TGTGGGGCTG	CAGCCCAGGA	TGGGACTAAG	TGTGAAGACA	TCTCAGCAGG	800
TGAGGCCAGG	TCCCATGAAC	AGAGAAGCAG	CTCCACCTC	CCCTGATGCA	850
CGGACACACA	GAGTGTGTGG	TGCTGTGCCC	CCAGAGTCGG	GCTCTCCTGT	900
TCTGGTCCCC	AGGGAGTGAG	AAGTGAGGTT	GAATTGTCCC	TGCTCCTCTC	950
TGCTACCCCA	ACATTCACCT	TCTCCTCATG	CCCCTCTCTC	TCAAATATGA	1000

(2) INFORMATION FOR SEQ ID NO:42

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1144 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (B) CLONE: S103

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42

	CTCTGACTCT	CCGCGGTGGT	TGTTGGGGCT	TCTTGGCTTT	GTTTTGTTGT	50
	TTGTTTGTAT	TTTATTTTTT	TCTCTCTGAC	ACCTATTTTA	GACAAATCTA	100
	AGGGAAAAAG	CCTTGACAAT	AGAACATTGA	TTGCTGTGTC	CAACTCCAGT	150
5	ACCTGGAGCT	TCTCTTTAAC	TCAGGACTCC	AGCCCATTGG	TAGACGTGTG	200
	TTTCTAGAGC	CTGCTGGATC	TCCCAGGGCT	ACTCACTCAA	GTTCAAGGAC	250
	CAACAAGGGC	AGTGGAGGTG	CTGCATTGCC	TGCGGTCAAG	GCCAGCAAGG	300
	TGGAGTGGAT	GCCTCAGAAC	GGACGAGATA	ATGTGAACTA	GCTGGAATTT	350
	TTTATTCTTG	TGAATATGTA	CATAGGCAGC	ACTAGCGACA	TTGCAGTCTG	400
	CTTCTGCACC	TTATCTTAAA	GCACTTACAG	ATAGGCCTTC	TTGTGATCTT	450
10	GCTCTATCTC	ACAGCACACT	CAGCACCCCC	TTCTCTGCCC	ATCCCCCAGC	500
	CTCTCTTCCT	ATCCCATCCC	ATCCCATCCC	ATCCCATCCC	ATCCCATCCC	550
	GCTCTTTTCC	TACTTTTCCT	TCCCTCAAAG	CTTCCATTCC	ACATCCGGAG	600
	GAGAAGAAGG	AAATGAATTT	CTCTACAGAT	GTCCCATTTT	CAGACTGCTT	650
	TAAAAAAAT	CCTTCTAATC	TGCTATGCTT	GAATGCCACG	CGGTACAAAG	700
15	GAAAAAGTAT	CATGGAAATA	TTATGCAAAT	TCCCAGATTT	GAAGACAAAA	750
	ATACTCTAAT	TCTAACCAGA	GCAAGCTTTT	TTATTTTTTA	TACAGGGGAA	800
	TATTTTATTC	AAGGTAAAAT	TCTAAATAAA	ATATAATTGT	TTTTTATCTT	850
	TTCTACAGCA	AATTTATAAT	TTTAAGATTC	CTTTTCTTGT	TTATCAGCAG	900
	TTGTTATTAC	ATCCTTGTGG	CACATTTTTT	TTTAATTTTG	TAAAGGTGAA	1000
20	AAAAGCTTTT	ATGAGCTCAT	CTAGCAATCA	GATTTTCCTG	TGGA	1144

(2) INFORMATION FOR SEQ ID NO:43

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1366 bp
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Double
- (D) TOPOLOGY: Circular

(ii) MOLECULE TYPE: Genomic DNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:

- (B) CLONE: S110

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43

	GGAATTCAAT	GGAATATAAC	GAAATGGATA	GGATCAGAAC	GGAACAGAGC	50
	GGAGTGGAGT	TGAGTGGAGT	GGATCGGAGT	GCAGTGGAAA	GGAATGGAAT	100
40	AGAATGGAAT	GGAATGCAGT	GGAGTGGAAAT	GGAATGAAGT	GGAATGGAGT	150
	TGAGTGGAGT	GGATCGGAGT	GCAGTGGAAA	GGAATGGAAG	AGAATGGAAT	200
	GGAATGGAAT	GCAGTGGACT	GGAATGGAAT	GGAGTGGAGT	GGAGTGCAGT	250
	GGGAATCGAG	TGGAGTGGAG	TGGAATGGAC	TGGAATGGAA	TGGATTGGAG	300
	TGGAGTGCAG	TGGAATCGAG	TGGAGTGGAG	TGGAATGGAG	TAGAATGGAA	350
45	TGGAGTGGAG	TGTAGTGGAA	TGGAATGGAA	TGGTGAATGA	ATGTCAGCTA	400
	AGATTGTGCA	ACTGCATTCC	AGTCTGGGTG	ACAAAGTGAG	ATCCAGTCGA	450
	AGTAAAGGAA	TGGAATGGAA	TAGAGTAAAA	TGGAATGGAA	TGGTGTGGAG	500
	TGGAATGGAA	TGGAGAGGAA	TGGAGTGGAG	TGGAGTGGAG	TGGAGTGGAA	550
	TGGAGTGGAG	TGGAATGGAG	AGTGATGGAG	AGGAATGGAA	TGGAATGGAA	600
50	TGGAATGGAG	TGGAATGGAA	TGGAATGGAG	TGGAATGGAA	TGGAATGTAG	650
	AGGAGTGGAG	TGGATTGGAG	TGGAGTGGAA	TGGAGTGGAA	TAGAGTGGAA	700
	TTTAGTGGAG	TGTAATGGAG	TGGAGTGGAG	TGGCAGTTGA	GTGGCATGGA	750
	TCAGGTGCAG	TGGAATGGAA	TGGAATGGAG	TGGAGTGGAG	AGGAGTGGAG	800
	TGGAATCGAA	TGGAATGGCA	TGGAGTGGAG	TGGAATGGAG	TGGATTGGAA	850
55	TTGAATGCAG	TGGAATGGAA	TGCAATGGAG	TGGAGTGGAG	TGCAGTGGAG	900
	TGGAGTGGAG	GGGAATGGAA	TGGAGTGGAG	TAAAATGGTT	TGGAATGGAG	950
	TGGGGTGGAA	TGGAGTGGGT	TGGAATGGAG	TGGAGTGGAG	TAGAACGGAG	1000
	TGATTGGGGT	GGAATGGAAT	AGAGTGGAAAT	GGAATGGAGT	GGAGTGGAGT	1050

AGAACGGAGT GATTGGAGTG GAATGGAATA CAGTAGAGTG GAATGCAGTG 1100
GAGTGGAATG GAATGGAGTG GAGTGGCATG GAAAGGAATG GAGAGGAATG 1150
GAATGGAATG GAATGGAATG GAATGGAATG GAATGGAATG GAACGGTGAA 1200
ATAAAATGTG AGTTAAGATT GTGCCACTGC ATTGCAGTCT GGGGGACAGA 1250
GTGAGATACA GTCGAAATAA AGGAATGGAA GGGACTGGAG TAGAATGGAA 1300
TGGAATTGAG TGGAGTGGAA TGGAAATGAAG TGGAGAGGAA TGGAAATGGAG 1350
TGGAAATGCAA TGGAGG 1366

(2) INFORMATION FOR SEQ ID NO:44

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44

TGGCTCAGAC ACCTCATTG 19

(2) INFORMATION FOR SEQ ID NO:45

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45

CACCACTGTA TTCCAGTTT G 21

(2) INFORMATION FOR SEQ ID NO:46

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46

CACTTGCCAT CCCTGCCACA CA 22

(2) INFORMATION FOR SEQ ID NO:47

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47

AGCGCACCCC CAATTTCCGG TAT 23

(2) INFORMATION FOR SEQ ID NO:48

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48

TGGGGACATG AACACACTTT GC 22

(2) INFORMATION FOR SEQ ID NO:49

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49

GAGGCCCAGG ACCAGATGAA AT 22

(2) INFORMATION FOR SEQ ID NO:50

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50

CACCTGTCAG GCAAGGCTTA AAC 23

(2) INFORMATION FOR SEQ ID NO:51

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51

CAACACTGAG CGCTTTTAGG GACT 24

(2) INFORMATION FOR SEQ ID NO:52

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52

TCAGGCAAGG CTTAAACAGG GATA 24

(2) INFORMATION FOR SEQ ID NO:53

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53

ACACTGAGCG CTTCTAGGGA CTTC 24

(2) INFORMATION FOR SEQ ID NO:54
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54

TGAGCGCTTC TAGGGACTTC TTCA

24

(2) INFORMATION FOR SEQ ID NO:55
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55

CCCTGCCCTA CCCACTTG

18

(2) INFORMATION FOR SEQ ID NO:56
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56

AGGCCCAGGA CCAGATGA

18

(2) INFORMATION FOR SEQ ID NO:57
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57

GCACCTGTCA GGCAAGGCTT AAAC

24

(2) INFORMATION FOR SEQ ID NO:58
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:58

CCAGCCATGA AGTGGCTGTG AG

22

(2) INFORMATION FOR SEQ ID NO:59
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22

- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

5 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:59

CCCGCTTCAA AGTTCCCAGT TC 22

(2) INFORMATION FOR SEQ ID NO:60

- 10 (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 21
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

15 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:60

CCTCCCATTT CAGCCTCCTG A 21

(2) INFORMATION FOR SEQ ID NO:61

- 20 (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 24
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

25 GTCTGCCACA GTGCTGGAAA CTAA 24

(2) INFORMATION FOR SEQ ID NO:62

- 30 (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 21
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

35 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:62

GCACCCCAGC CTAAGGCAAT A 21

(2) INFORMATION FOR SEQ ID NO:63

- 40 (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 18
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

45 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:63

GCATGGCGGA AGAAACAA 18

(2) INFORMATION FOR SEQ ID NO:64

- 50 (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 19
 - (B) TYPE: Nucleic Acid
 - (C) STRANDEDNESS: Single
 - (D) TOPOLOGY: Linear

55 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:64

TGGCAACAGA GCGAGACTC

19

(2) INFORMATION FOR SEQ ID NO:65

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:65

CCTGGGTGAC AGCGAGAATC T

21

(2) INFORMATION FOR SEQ ID NO:66

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:66

TGTCCCTTGC CTTGTCTCAC TAAA

24

(2) INFORMATION FOR SEQ ID NO:67

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:67

CAGCCTTGGT GACAGAGCAA A

21

(2) INFORMATION FOR SEQ ID NO:68

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:68

TGTGTTGAGG GTGGGGTACA T

21

(2) INFORMATION FOR SEQ ID NO:69

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:69

CCTGGGCAAG AGAGCAAG

18

(2) INFORMATION FOR SEQ ID NO:70

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:70

CACATCCCAA AACCACCCTA C

(2) INFORMATION FOR SEQ ID NO:71

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:71

GCATTTCCCC TGCTTGTA CT

(2) INFORMATION FOR SEQ ID NO:72

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:72

GATCACATTT GCTAACCA CT TCTC

(2) INFORMATION FOR SEQ ID NO:73

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 26
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:73

GGCAACATAT CAAGACCC CC ATCTCT

(2) INFORMATION FOR SEQ ID NO:74

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 26
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:74

GAAGCTGCCC CTCACCA CT ATTTT

(2) INFORMATION FOR SEQ ID NO:75

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid

- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:75

GATCACATTT GCTAACCACT TCTC

(2) INFORMATION FOR SEQ ID NO:76

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:76

TATAAATTAC CCAGTCTCAG GAAG

(2) INFORMATION FOR SEQ ID NO:77

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:77

GTGATACAGC AAGCCTCATC

(2) INFORMATION FOR SEQ ID NO:78

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:78

AGAGACTCCT GGAAAGATAA~AAGT

(2) INFORMATION FOR SEQ ID NO:79

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:79

GTCTGGAGAA CAGTGGCCCT TGT

(2) INFORMATION FOR SEQ ID NO:80

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:80

CAGGAAGCTG AGGCAGGAGA ATCT

24

(2) INFORMATION FOR SEQ ID NO:81

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:81

AAGGCTCCAG TGGGGTAT

18

(2) INFORMATION FOR SEQ ID NO:82

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:82

AAAACAAGGC AGTAGTCAAT AAAG

24

(2) INFORMATION FOR SEQ ID NO:83

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:83

GGCATGAGAA TCGCTTGAAC CTG

23

(2) INFORMATION FOR SEQ ID NO:84

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:84

GGCCTCCATG ATGTTTCCAA TGAT

24

(2) INFORMATION FOR SEQ ID NO:85

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:85

TCAGGAGGCA TGAGAATCGC TTGA

24

- (2) INFORMATION FOR SEQ ID NO:86
(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24
 (B) TYPE: Nucleic Acid
 (C) STRANDEDNESS: Single
 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:86

GGCCTCCATG ATGTTTCCCA ATGA

- (2) INFORMATION FOR SEQ ID NO:87
(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24
 (B) TYPE: Nucleic Acid
 (C) STRANDEDNESS: Single
 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:87

CTCGCCCTCT CCTATAAGCA GTTT

- (2) INFORMATION FOR SEQ ID NO:88
(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24
 (B) TYPE: Nucleic Acid
 (C) STRANDEDNESS: Single
 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:88

GCAGAGATAA TTTGGAGTGG GATG

- (2) INFORMATION FOR SEQ ID NO:89
(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18
 (B) TYPE: Nucleic Acid
 (C) STRANDEDNESS: Single
 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:89

CTTGGGTGCC TGTAATCC

- (2) INFORMATION FOR SEQ ID NO:90
(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18
 (B) TYPE: Nucleic Acid
 (C) STRANDEDNESS: Single
 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:90

GGTAGAGCTC CCCCATCT

- (2) INFORMATION FOR SEQ ID NO:91
(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22

(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

5 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:91

GCAGAATATT GGGGCTCATC AC 22

(2) INFORMATION FOR SEQ ID NO:92

10 (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 24
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

15 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:92

AAACAAGGAA AGGAGAGGAG AGGA 24

(2) INFORMATION FOR SEQ ID NO:93

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 23
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:93

AAGGTTGTGG GATGACTACT ACA 23

(2) INFORMATION FOR SEQ ID NO:94

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 21
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:94

40 TGGTCAACAC AGCAAGACAT T 21

(2) INFORMATION FOR SEQ ID NO:95

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 22
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:95

50 TCCTGCCACC TGCTTGCTTT CT 22

(2) INFORMATION FOR SEQ ID NO:96

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 23
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:96

ATTGCACTCC AGCCTGGGTGA TAC 23

(2) INFORMATION FOR SEQ ID NO:97

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:97

CGCTTGAGCC TTGGAGATTG 20

(2) INFORMATION FOR SEQ ID NO:98

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:98

GAGCAGTCAG AATTCAGGAG TTGT 24

(2) INFORMATION FOR SEQ ID NO:99

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:99

TGGGCAACAA GAGCAAAACT CCAT 24

(2) INFORMATION FOR SEQ ID NO:100

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:100

GGGACTTGCG CTGAGGGCTT TAC 23

(2) INFORMATION FOR SEQ ID NO:101

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:101

ATATCAATAT CAGGCAGCCA CAGG

24

(2) INFORMATION FOR SEQ ID NO:102

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:102

CCGTTTCAGA GCAGAGGTTT AGC

23

(2) INFORMATION FOR SEQ ID NO:103

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:103

TCTCATTGGT TTCAAAGAAC TTA

23

(2) INFORMATION FOR SEQ ID NO:104

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:104

AGACTCCATC TCAAACAAAA GA

23

(2) INFORMATION FOR SEQ ID NO:105

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:105

TCATGTGCAT GGAGCCTGGT TCAT

24

(2) INFORMATION FOR SEQ ID NO:106

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:106

CCCAGCCTTG GCAAGAGTGA GGT

23

(2) INFORMATION FOR SEQ ID NO:107

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:107

GGCGACTGAG CAAGACTC

(2) INFORMATION FOR SEQ ID NO:108

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:108

TTAAGCAAAG TAGCCTCAAA CA

(2) INFORMATION FOR SEQ ID NO:109

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:109

GGGCGACTGA GCAAGACTC

(2) INFORMATION FOR SEQ ID NO:110

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:110

ACTCATTACC TTGCATGCAT GATA

(2) INFORMATION FOR SEQ ID NO:111

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21
- (B) TYPE: Nucleic Acid
- (C) STRANDEDNESS: Single
- (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:111

CATTACCTTG CATGCATGAT A

(2) INFORMATION FOR SEQ ID NO:112

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21
- (B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:112

TGGGCAACAG AGTAAGACTC A

(2) INFORMATION FOR SEQ ID NO:113
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:113

GTTTCAGTACC GTTCACCTCT TTA

(2) INFORMATION FOR SEQ ID NO:114
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 30
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:114

GTAAGACTCA GTCTCCAAAA AAAAAAAAAAG

(2) INFORMATION FOR SEQ ID NO:115
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 38
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:115

AGGAATGGTT TCTCTGTTAG TAAATGGT

(2) INFORMATION FOR SEQ ID NO:116
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:116

CAGCCTGGGC AACAAGAATG AAAC

(2) INFORMATION FOR SEQ ID NO:117
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:117

TGGCCCCTGC AGCGGAGTC

19

(2) INFORMATION FOR SEQ ID NO:118

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 21

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:118

GAATTCATTT GCGGAAAGAT T

21

(2) INFORMATION FOR SEQ ID NO:119

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 21

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:119

CTAGGGAGGC TGGAGTATTC A

21

(2) INFORMATION FOR SEQ ID NO:120

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:120

AGAGCAAGAC CCCGTCTCAT

20

(2) INFORMATION FOR SEQ ID NO:121

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:121

AGTCCATGGG CCTTTTAACA

20

(2) INFORMATION FOR SEQ ID NO:122

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 23

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(ii) MOLECULE TYPE: Oligonucleotide ssDNA

(iii) HYPOTHETICAL: no

(iv) IMMEDIATE SOURCE:
(B) CLONE AMPLIFIED: S125

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:122

GAGAATCACT TGAACCCAGG AAG

(2) INFORMATION FOR SEQ ID NO:123
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:123

AGAACCAGCT GTTAGTTTCG TTGA

(2) INFORMATION FOR SEQ ID NO:124
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:124

GGTTGCAGTG AGCCGAGATA AGAGT

(2) INFORMATION FOR SEQ ID NO:125
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:125

TGTGCCAGGA ACCAGAAATT TACAG

(2) INFORMATION FOR SEQ ID NO:126
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:126

GGCCCAAGGT TACTTTTCAC

(2) INFORMATION FOR SEQ ID NO:127
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:127

GGGCCACTGC ACTCCT

16

(2) INFORMATION FOR SEQ ID NO:128

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 22

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:128

CATGGTGAGG CTGAAGTAGG AT

22

(2) INFORMATION FOR SEQ ID NO:129

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 25

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:129

GTGGCGTGTC TTTTACTTT CTTTA

25

(2) INFORMATION FOR SEQ ID NO:130

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 18

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:130

AGGCAGCCCA GGAACAAT

18

(2) INFORMATION FOR SEQ ID NO:131

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 22

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:131

CCAAGATAGC GGCCAAGATA GT

22

(2) INFORMATION FOR SEQ ID NO:132

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 24

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:132

GAGGGCAGCT GGGATGTTAC TCTT

24

- (2) INFORMATION FOR SEQ ID NO:133
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:133

TGCCCTGTTT GGAGAACTGT AGGT

- (2) INFORMATION FOR SEQ ID NO:134
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:134

CTCCCCAGAA ACAGATGTA

- (2) INFORMATION FOR SEQ ID NO:135
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:135

GTGAGCCGAG ATTGTATCAT

- (2) INFORMATION FOR SEQ ID NO:136
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:136

TCGGGGACAG GGCTTACTC

- (2) INFORMATION FOR SEQ ID NO:137
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:137

ATCATTGTCG CTGCTACTTT ATCG

- (2) INFORMATION FOR SEQ ID NO:138
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21

(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

5 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:138

CTACTCTACC CCATTTTCATT C 21

(2) INFORMATION FOR SEQ ID NO:139

10 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
15 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:139

GTAGAGTGGAG TGGATGAGA 19

20 (2) INFORMATION FOR SEQ ID NO:140

25 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:140

30 ATCAGGCAAA AACGAACAAA C 21

(2) INFORMATION FOR SEQ ID NO:141

35 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:141

40 CGGCATCCCA AAGTGAC 17

(2) INFORMATION FOR SEQ ID NO:142

45 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:142

50 CAGAGAGGGCA GCACCTTGGA CAG 23

(2) INFORMATION FOR SEQ ID NO:143

55 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Single
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:143

GGCTTCACCT GCTCCCGTTT CAG

23

(2) INFORMATION FOR SEQ ID NO:144

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 22

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:144

TCTGCCCATT CCCCAGCCTC TC

22

(2) INFORMATION FOR SEQ ID NO:145

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 24

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:145

TACCGCGTGG CATTCAAGCA TAGC

24

(2) INFORMATION FOR SEQ ID NO:146

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 18

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:146

TCCAGTCTGG GTGACAAA

18

(2) INFORMATION FOR SEQ ID NO:147

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20

(B) TYPE: Nucleic Acid

(C) STRANDEDNESS: Single

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:147

CAATCCACTC CACTCCTCTA

20